THE RELATION OF THE PRESENT MOVEMENT FOR VOCATIONAL EDUCATION TO THE TEACHING OF THE MECHANIC ARTS[1]

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It is well-nigh impossible to say anything new on the subject of industrial education. The report of your own state commission on Plans for the Extension of Industrial and Agricultural Training is one of the clearest and most significant statements of the existing situation which has yet appeared, and you are doubtless familiar with that report. If it failed in any particular, it was, perhaps, in neglecting to indicate the very valuable contribution to industrial education which our manual training, or some adequate development of it, might make within the existing school system.

That there is a decided tendency to emphasize the vocational aspects of education, few will deny. This tendency is to be observed in all grades of schools, from the elementary through the university. That we may utilize to the fullest extent, the brief time at our disposal, let us limit our field somewhat by reminding you of the following classification: Vocational education includes professional education, commercial education, agricultural education, household education, and industrial education. We shall confine our discussion to the relation of the teaching of the mechanic arts to industrial education, the education specifically adapted to the needs of the industrial worker.

In the development of things educational, one-third of a century cannot be considered a very long time, yet thirty-three years approximately cover the entire history of what we commonly designate as manual training, or the teaching of the mechanic arts, in this country. There had been earlier experiments in Pestalozzian methods, but these had come to nothing, or at all events, they have no connection with the movement to introduce handwork into the

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schools which took shape shortly after the Philadelphia Exposition in 1876.

It is impossible to understand the present movement for vocational education without a fairly clear conception of the history of manual training. Time will not permit a thoroughgoing analysis of the subject, but I will state, somewhat dogmatically, and as a basis for further discussion, what seem to me to be the significant facts.

Manual training was originally urged as industrial education; that is to say, the purpose of its introduction into the school curriculum was to teach the fundamentals of the trades. The report of a school committee in 1878 is fairly illustrative of the position commonly taken by school boards at that time: "The question of teaching trades in our schools is one of vital importance. If New England would maintain her place as the great industrial center of the country, she must become to the United States what France is to the rest of Europe, the first in taste, the first in design, the first in skilled workmanship. She must accustom her children from early youth to the use of tools, and give them a thorough training in the mechanic arts."

While laymen held this idea, many of the educators did not entirely concur with it. The introduction of manual training was opposed by the conservative educator on the ground that the specific function of the school was to dispense only such education as was broadly cultural, and preparatory for life only in a very general way.

To meet this objection the advocates of manual training claimed that instruction in the mechanic arts provided a very essential element of liberal culture which it was undoubtedly the business of the schools to supply. They said: "Manual training is needful for every individual, irrespective of his calling or professional career. The boy in the grades or in the high school is sent to the school shop, not because he is to be a carpenter. He is sent there though it be already clear that he is to be an attorney or a physician or a clergyman."

The advent of the so-called new psychology with its dependence on physiological phenomena greatly stimulated the introduction of

manual training for its general educational values. "Simply as an aid to co-ordination, manual training would justify itself were that the sole point of its educational bearing." "Handwork arouses the initiative, sets in motion the essential activities of the mind, attention, and will, and requires a correct expression of the will. Thus it is an important tool for the development of the intelligence, and the permanent retention of knowledge in the brain." Quotations of this kind could be multiplied indefinitely, but perhaps they are best summed up in the one catch phrase which was very commonly heard fifteen years ago, "Put the whole boy to school."

The rapidity of the early development of manual training and its acceptance by educators throughout the country are to be accounted for almost entirely on the ground that it was considered to be a form of general education, and that it accorded with the prevailing ideals of the schools.

The recent report of the committee of the National Education Association on "The Place of Industries in Public Education" says:

> At the present time, the great majority of manual training high schools—practically all of them notwithstanding the distinction in name—differ in no important educational particular from the other high schools in the United States; they admit pupils of the same general type, of the same age, and of the same preparatory training. These schools aim to develop the same type of intelligence, the same habits of thought, and the same kind of ability as do other high schools; and their graduates are found in the same wide variety of occupations. While the subjects taught are not identical, the manual training schools are, nevertheless, essentially schools of the college-preparatory type in which the instruction, mechanical as well as academic, aims to provide the mental equipment of the kind required by those who would continue by college-preparatory standards. The fundamental aim of these schools is a general training, and specific training for industrial occupation is incidental. . . . .

To understand the new movement for industrial education we must appreciate the fact that while, during the past thirty years, the curricula, the practices, and the appearances of our schools have changed wonderfully, nevertheless their ideals and their conception of the fundamental purposes of education have remained essentially the same.

The new conception of education inherent in the movement for vocational training is that diversified conditions of life and work

demand diversified education. It recognizes the fact that all cannot have the same education, that all cannot use, and do not need, and in fact do not want, the same education; that with educational food, as well as with food for the body, "One man's meat is another man's poison." The new ideal of education demands that the schools turn out their graduates as different as God intended them to be, and as their future happiness, success, and satisfaction, in their various vocational and social relations, require that they shall be. The education of the several individuals or groups is to be identical only in this, that the education of each shall be equally adequate, equally respected, and administered with equal intelligence and sympathy.

Thus we see that while manual training, as a part of general education, means a fraction of the education of all children, industrial education, as now conceived, means the complete and adequate education of the industrial worker.

The above statement will almost certainly be met with the objection that this means class education, and that class education or class distinctions of any kind are hateful to the true American. Nevertheless, the strength of the movement for industrial education comes from the belief that our educational machinery is out of harmony with our social and industrial organization.

Some of the more pertinent facts relating to the social organization may well be briefly considered. First of all will be found the wage system itself. As we know, the system places upon the individual the responsibility for his own and for his family's support. It is individualistic, not socialistic. It works well for the fortunate, but for many unfortunate it has worked such evil that it is frequently referred to as "wage slavery." At all events, it has produced two distinct classes with interests apparently widely divergent, if not diametrically opposed—the employers and the employed. We find also that it has led to an exceedingly unequal distribution, not only of wealth, but also of opportunity for securing personal happiness, comfort, and satisfaction in the fundamental experiences of life. Another factor is the factory system of production. Beneficent in many of its results as this system may be, it has, nevertheless, resulted in the degradation of

countless individuals by dooming them to the endless repetition of a single process and by its utilization of cheap labor, especially the labor of women and children. By ever increasing the magnitude of the scale of production, it has resulted in a permanency of status of multitudes of wage-earners.

If, with these social and economic conditions in mind, we examine our public-school systems, we are led to conclude that the ideals and machinery of a "leisure-class" education still persist to a very considerable degree. We find that our schools are shaped for those who go to the top. Perhaps there is no better illustration of the saying, "Unto everyone that hath shall be given, but from him that hath not shall be taken away even that which he hath," than that which is afforded by our public schools. They have been so successful in eliminating the unfit, "him that hath not," that probably 50 per cent of our pupils receive only the slightest benefit from the free, public "universal" education which we have fondly believed was the birthright of every child in America.

Furthermore, our schools so monopolize the time and strength of the children who do attend them that we have the spectacle of strong, able-bodied, and able-minded boys reaching seventeen, eighteen, nineteen, or twenty years of age without ever having done an honest day's work in their lives, a spectacle which is, to my mind, quite as disconcerting as the horrors of child labor.

Lest you feel that my arraignment of the public school is entirely unjust, I will remind you of what educators generally consider to be a fact; namely: that the secondary schools are dominated by the universities and by the university spirit. So good an authority as Governor Woodrow Wilson has intimated that the universities, in their turn, are dominated, not by the spirit of social democracy, but by the personality and the ideals of men of large wealth. He says: "Who constitute the trustees of your universities? For the most part, the men of large wealth and of important corporate connections. Do you realize these gentlemen of large wealth and great corporate connections, no matter how honest they are—as those that I have had to do with have been scrupulously honest men—no matter how well disposed toward the progress of education, nevertheless, have a particular point of view with regard to Ameri-

can life that is not the proper point of view for young men of America to be brought up under?"

What is meant by all this is that education is becoming more and more socialistic, and that the desires and needs of all grades and shades and classes of our body politic will soon be taken account of in determining the kind of educational machinery which the public authorities will administer and for which the public will liberally tax itself. The new conception of industrial education is simply this: a publicly supported education which has as much regard for the future success of the industrial workers as it has for that of the professional or managerial classes.

It means that we are coming to look at education from the point of view of the man in the street, as well as from the point of view of the liberally educated. It means that we are to think as carefully and sympathetically about the education of the pupil who can give but eight or ten entire and consecutive years to his schooling as we do about the education of one who can give eighteen or twenty years to that pursuit. It means that the people support the schools, and that they are beginning to feel that they should have something to say about their management. It is, indeed, a part of the general effort of the people to gain control of, and to benefit by, their own institutions.

Whether you agree with the foregoing propositions or not, I am confident that a careful analysis of the present demand for industrial education would lead you inevitably to similar conclusions. This demand comes from four rather distinct sources:

First.—The manufacturing interests desire industrial education because they feel the need of more efficient and intelligent workmen, and because they wish, so far as possible, to avoid increasing the cost of production incident to maintaining apprenticeship systems which, under the existing conditions, are expensive and somewhat unsatisfactory.

Second.—Representatives of organized labor are demanding industrial education partly because they feel the need of the training for the coming generation, and partly because they desire to prevent ill-considered and possibly antagonistic plans for industrial education, which might flood the labor market with cheap and partially trained labor.

Third.—Educators are advocating industrial education because they see the psychological value of the more direct appeal to the vital interests of thousands of our children, and because they believe that in this way the schools will be able successfully to develop a larger percentage of the children intrusted to their care.

Fourth.—Organized society, working for social betterment, is urging industrial education as one of the surest ways to eliminate the most potent causes of crime and unhappiness, unemployed ignorance.

This demand has resulted in the establishment of publicly supported industrial schools and classes in all parts of the country. I think we are justified in saying that they are regarded as "experiment stations," and yet few who know them will have any doubt as to their permanency, their progress, and their ultimate articulation with the public-school systems.

There are no two of these schools exactly alike and they range all the way from the pre-vocational work of the sixth, seventh, and eighth grades of the elementary school, to the thoroughgoing trade school for young men and women, noteworthy examples of which are to be seen right here in Milwaukee, in the Milwaukee School of Trades for Boys and the Milwaukee School of Trades for Girls.

These schools may be roughly classified as (1) pre-vocational or semi-industrial schools; (2) separate or independent industrial schools; (3) vocational high schools; (4) trade schools. The pre-vocational school and the vocational high school illustrate sincere attempts to incorporate real industrial training into our present school system, whereas the separate industrial school and the trade school frankly ignore the present system, at least so far as pre-requisite preparation is concerned.

There are also the half-time co-operative schools, and the continuation schools. The first of these provides opportunity for the boy or girl to do gainful work for an employer while pursuing the present school courses. The second is an opportunity offered by the school authorities to boys and girls, or young men and women who have already gone to work, to receive from four to eight hours a week of special education in special public-school classes.

It is impossible at this time to describe in detail the several types of schools, but I will enumerate five of the most distinctive features which are practically common to all types of industrial schools:

1. It is considered better to recognize, stimulate, and guide vocational interest in children of twelve to sixteen years of age than to try to suppress it. The value of the vocational motive in higher education is clearly recognized, and it is believed that industrial workers (who do not come at their life-work by the way of higher education) may equally profit by such incentive.

2. These schools recognize a twofold purpose in industrial education. The first, and perhaps the most important in the more elementary grades, is to prolong the school life of the child; the second is better to equip him for his initial entry into his vocational life. Of the two purposes the one most prominent in the minds of the pupils is the getting of a training which has real economic value, while the one appealing to the teacher is the giving of that benefit which may result from two or three additional years of contact with the ideals of school life.

3. The vocational motive and the vocational work are made paramount and central. Around this center is grouped and correlated all the work of the school, both handwork and bookwork. The bookwork is given with less elaboration, and all superfluous matter is greatly reduced or entirely eliminated.

4. The school day is lengthened to six, seven, or eight hours to provide for participation in, instead of mere instruction about, industrial work. The product system is generally made, therefore, the basis of the handwork.

5. The principle of a proportional subdivision of the time of all pupils is followed. In the broadest professional training the individual's education consists of three rather distinct periods. The first is intended to give a broad general training and extends from the beginning of school to about the third year in high school. The second period is intended to give a broad but somewhat defined or restricted groundwork for the specialty such as is afforded, for example, in the case of the future lawyer, by the study of history, languages, the political and social sciences, etc. This period extends from the middle of the high school to the beginning of senior college

work. The third period consists of relatively narrow and intensively specialized training. The plan of industrial education demands a somewhat similar distribution of the school time of the future industrial worker, the length of each period being proportional to the probable total time to be spent in school. The minimum requirement is as follows: First, a period covering the first six elementary grades. Second, a period covering at least the seventh and eighth grades. The minimum amount of time devoted to the third period should be at least one year. In no case should this period, the period of intensive training for entry into vocational life, be omitted, but where more time is available, both the second and third periods may be materially extended.

This briefly describes the movement for vocational education. As before stated, the report of your own commission discusses it in much greater detail. In stating the problem it has succeeded in giving practically all the pertinent facts, and in excluding a mass of material which is commonly introduced without any other effect than to cloud the issue. This is especially true regarding the statement of the need for industrial education, and the lessons to be learned from the experience of Germany; the analysis of the part-time work of Cincinnati, Fitchburg, and Beverly; the discussion of evening schools; and the insistence on the major necessity of educating the industrial *worker* rather than the officers of industry.

In suggesting solutions of the problem, the report has taken the strongest possible position in regard to administration. It has avoided the mistake of the first Massachusetts commission in demanding "separate" schools, and also the earlier mistake of believing that "general educational values," the end sought by the traditional school, will serve effectively the present need. The attitude of the report is most commendable regarding the need of modern apprenticeship laws; the qualifications of teachers; the necessity of adapting methods to local conditions; the importance of advisory boards; the correlation of industry and education; the equity and good policy of treating sympathetically the wishes of organized labor; and the need of liberal financial support.

I have been asked to discuss the relation of this movement to the teaching of the mechanic arts. It seems to me that, if I have

succeeded in setting forth the facts with any clearness, the relation which exists *today* must be evident. As a part of the general educational scheme which has proved to be satisfactory for perhaps 15 per cent of our pupils, those who move happily and without retardation through the several grades, the teaching of the mechanic arts is as effective as the instruction which is commonly given in the languages, in mathematics, or in the sciences. As "industrial education" it is as valuable as these subjects but certainly it is not usually more specifically so. Whether, for these pupils, it need to be made so is a debatable question, but the more pertinent question, for us, and indeed for manual-training teachers generally, is this: "Shall we continue to interest ourselves mainly in the education, of the 15 per cent who go well on toward the top, or shall we rather devote our energies to helping on the well-defined movement to greatly increase the efficiency of the education of the 85 per cent?" Frankly, my sympathies are with the latter problem, and my belief in the peculiar fitness of manual-training teachers to help in its solution is strong.

Referring again to the report of your commission, I would say that in only one respect is it disappointing. Throughout the entire discussion, it seemed evident that the commission fully realized the complete failure of the present school system to meet even the smallest needs of a large number of our school children. I refer to those leaving school at fourteen years of age from the fourth, or fifth, or sixth grade. Your commission evidently saw that the remedy, to be effective, must minister to the needs of these children and that, to secure this end, there must be brought about, to use the words of the report, "the betterment of school conditions in general." It does not seem to me, however, that the plans proposed by the commission reach the root of the matter in this particular.

I believe that the introduction of "*pre*-apprentice" or "*pre*-vocational" work in the schools is more important for large numbers of these children than the establishment of industrial, technical, or trade schools. It seems to me that even the continuation school will not benefit largely the boy who has been so hopelessly retarded that his fourteenth birthday finds him in one of the lower grades.

That boy has been a "dead one" for two or three years. Pre-apprentice work for such boys, beginning *before* fourteen, will undoubtedly serve to deter them from leaving school by creating an industrial interest which further training alone will satisfy.

It is in this phase of the new movement that manual-training teachers are peculiarly fitted to give invaluable aid. Here an adequate appreciation of industrial and social realities and of pedagogical principles are alike necessary, and this appreciation is more likely to be possessed by manual-training teachers than by any body of men and women of which I have any knowledge. If manual-training teachers could be empowered by the school authorities to give the right kind of manual training to the right children at the right time and in the right amount, there is no question in my mind that manual training would have a very considerable industrial value. Furthermore, it would be the means of postponing in this part of the country for a generation, and perhaps indefinitely, many of the acute problems which the promoters of industrial education in the East are finding so difficult of solution.

If there is anything certain in the immediate educational future it is this: that radical modifications of existing systems of grading and of courses of study, in both the elementary and the secondary schools, will be effected. It is also probable that the basis of secondary education will be made the subject of scientific study and that the sphere of the secondary school will be considerably extended, both downward and upward. It is clear that these modifications will create new conditions to which manual training, in common with all other subjects in the curriculum, will have to be adjusted. Here is something which all manual-training teachers must meet sooner or later, and, as it involves such widespread educational improvement for the less fortunate members of society, it is a problem which, I believe, should engage their eager and interested co-operation.